Biochm 385 **Biochemistry Laboratory** **Fall 09**

Instructors:
Dr. Manickam Sugumaran, manickam.sugumaran@umb.edu (tel # 6598)
Ms. Heather Kundzicz : heatherspins@comcast.net (tel # 6600) and
Dr. Tara Ashok tara.ashok@umb.edu (tel.# 7-6578)
Office hours: Mondays 11:00 A.M -1:00 P.M. or by appointment, or email. Please do not wait until the last minute for lab-report related questions.

Tuesdays 10.00 A.M - 5.00 P.M First day of classes will be held in M-1-114. Rest of the classes are held: Sugumaran M-1-114; Heather M-1-116; Tara W-3-066.
No textbook needed. Instruction materials will be given in the class. There are three lab rotations, four weeks with each instructor (Dr. Sugumaran, Dr. Ashok and Ms. Kundzicz). Each lab rotation will include four laboratory experiments. Student will be divided into three groups. The first group will follow the above lab rotation order: Sugumaran → Tara → Heather. The second batch will have the rotation: Tara → Heather →Sugumaran. The last batch will have the rotation: Heather →Sugumaran → Tara.

Class Schedule

Sep. 7. Monday Labor day **Holiday**
Lab. 1. Sep.8. Classes Begin - Introduction. Lab assignments, video presentation on lab safety.
Lab. 2. Sep 15. Add/Drop Ends – Dr. Sugumaran's Lab 1
Lab. 3. Sep 22. Dr. Sugumaran's lab 2
Lab. 4. Sep 29. Dr. Sugumaran's lab 3
Lab. 5 Oct 6. Dr. Sugumaran's lab 4

October 12 (Mon) Columbus Day (Holiday)
Lab. 6. Oct 13. Dr. Tara's Lab 1.
October 19 Monday mid semester
Lab. 7. Oct 20. Dr. Tara's Lab 2.
Lab. 8. Oct 27. Dr. Tara's Lab 3.
Lab. 9. Nov 3. Dr. Tara's Lab 4.

Lab. 10. Nov 10. Ms. Kundzicz Lab 1.
Nov 11 (Wed) Veterans Day (holiday)
Nov 12 Pass/Fail & Course Withdraw Deadline
Lab. 11. Nov 17. Ms. Kundzicz Lab 2.
Lab. 12. Nov 24. Ms. Kundzicz Lab 3.
Nov 26 to 29 (Thur to Sun) Thanksgiving Recess. Nov 30 (Mon) Classes Resume.
Lab. 13. Dec 1. Ms. Kundzicz Lab 4.

Lab. 14. Dec 8. **Final examination** for all sessions/instructors.
Dec 14 (Monday) Classes End
Dec 15 Study Period
Dec 16 to 22 (Wed to Tues) Final Exam Period

Biochemistry Lab Experiment Schedule (Order and experiments subject to change):

Dr. Sugumaran:

1. Size exclusion chromatography.

2. Affinity chromatography of trypsin.

3. Enzyme kinetics – determination of Michalies Menten constants for glucosidase

4**.** Combinatorial chemistry

Dr. Tara Ashok:

1. DNA extraction and Blood grouping for ABO and Rhesus system.

2. Solving a crime scene and paternity dispute case using DNA fingerprinting technique.

3. Study of protein hemoglobin and its variants at the molecular level using Southern blotting technique.

4. Introduction to Bioinformatics.

Ms. Heather:

1. Precision, Standard Curves

2. Chlorophyll assay

3. Enzyme coupled assay – lactase lab

4. Ion exchange chromatography.

Course policies:

Lab begins promptly at 10:00 AM. Please do not arrive late, unless you have prior permission from your instructor: There will be quizzes each week. There are no quiz make-ups, and it is important to hear all information regarding safety and procedure. There will be a pre-lab lecture immediately after the quiz and then students will separate into lab partners for the experiments. You will work in pairs unless the instructors indicate you need to work individually, change partners or work in a group.

The grade from each professor comes from the a) quizzes, b) laboratory performance, c) laboratory reports, and d) final examination. Final grade for the course will be the average grade

obtained from all three professors. If you miss a lab, you miss one fourth of the grade from the professor. There is no make up laboratory possible. The preparation of the lab involves several hours of work by the TAs and it is not possible to make up missed labs easily. If a lab is missed due to illness, please discuss your options with the professor. It is very important to be prepared for the labs. We expect that you will have read any materials given that pertain to the lab experiment you will be doing. Quizzes may include questions about the lab you are going to do that day! Please clean up your area thoroughly at the end of the day. Pay close attention to instructions for disposal of chemicals and broken glass (it happens!). Check floors for fallen objects and trash.

Grading: Lab Reports: 30% Quizzes: 30% Final: 30% Lab performance 10%

Lab Reports: Lab reports will be required for each experiment, in a format to be described by each of the instructors. **Reports are to be handed in at the beginning of the next class, one week after the experiments are done in the lab.** Lab grades will be lowered by 10 points (1 letter grade) for each week that they are late unless there is a really good reason and you have discussed it with the instructor. This way, you will be prepared for the quizzes and the instructor can get your reports back to you in a timely fashion. Excuses such as computer did not work printer broke will not work. You have your hands free to write. We encourage students to study together, **but not to "copy" lab reports**. If two or more students hand in assignments that are, in our estimation, too similar, (what we call - You get into trouble). **Students are expected to write their own lab reports. If caught copying other lab reports, they will be given an "F" grade and referred to upper administration for further action!!!.** Please save all references and research notes. Please do not rely on lab reports from former students; each year the labs are improved and altered, sometimes in subtle ways. *If a lab report refers to, or is taken, all or in part from a former lab session, the report will receive an **F** and the student will not be able to rewrite that report.*

Lab Report Format: (Note: Grading percentages are subject to change depending on the experiment)
INCLUDE: Name / date performed / course/ section / lab partner(s)

Aim: In one or two sentences state the aim of the experiment.

(~20%) **Introduction:** Not more than 1-2 pages. This should be a well-researched but *brief* discussion including background on techniques and relevance of the experiment. Please use textbooks and journals, as well as Internet resources. Please be careful when using web-searched articles. Use 2-4 reliable web sources, take notes on the information you need, and then re-write the information in **your own words.** Do not 'cut and paste'! Information that is copied from any source must have quotation marks and be cited. Cross-reference your information with your bibliography numerically[1], or by name (Author, *et. al.,).* Make the knowledge your own, and own it! Conclude with what you will do in this lab. If you "cut and paste" a document or simply copy a document (even from your lab partner or people from previous sections) it is considered as plagiarism (see below for more details).

(~10%) **Materials and Methods:** Briefly summarize how experiment was performed in paragraph or flowchart format. Include any deviations from the original procedure. Do not copy the lab handout.

(~30%) **Data and Results:** This includes *all* data and measurements from the experiment. If you test a sample in duplicate, please include both data points, not just the average. Charts are a great way to organize data. Also include any calculations or graphs made from your data. If your data is absolutely unusable, you must inform the instructor and obtain 'good' data for your report! Always report numerical data to the appropriate significant figure.

(~15%) **Answers to questions in lab handout, if any:** Rewrite or rephrase the question and answer it in complete sentences. You may need to use references, or information from the pre-lab lecture.

(~20%) **Conclusions:** Not more than 1 page. This is a discussion of the experiment ***you*** did. What did ***you*** discover? Were your results what you expected? Did you have any problems or unexpected results? How did you deal with them? Is there anything you would do differently?

(~5%) **Bibliography:** You MUST include references for any sources that you use, whether human, paper or electronic.

Accommodations

Section 504 of the Americans with Disabilities Act of 1990 offers guidelines for curriculum modifications and adaptations for students with documented disabilities. If applicable, students may obtain adaptation recommendations from the Ross Center for Disability Services, M-1-401, (617-287-7430). The student must present these recommendations and discuss them with each professor within a reasonable period, preferably by the end of Drop/Add period.

Student Conduct and Academic Honesty

Students are required to adhere to the University Policy on Academic Standards and Cheating, to the University Statement on Plagiarism and the Documentation of Written Work, and to the Code of Student Conduct. The Code is available online at: http://www.management.umb.edu/undergrad/undergrad_code_of_conduct.php#top

Another site to help you define plagiarism is http://www.lib.umb.edu/cheating